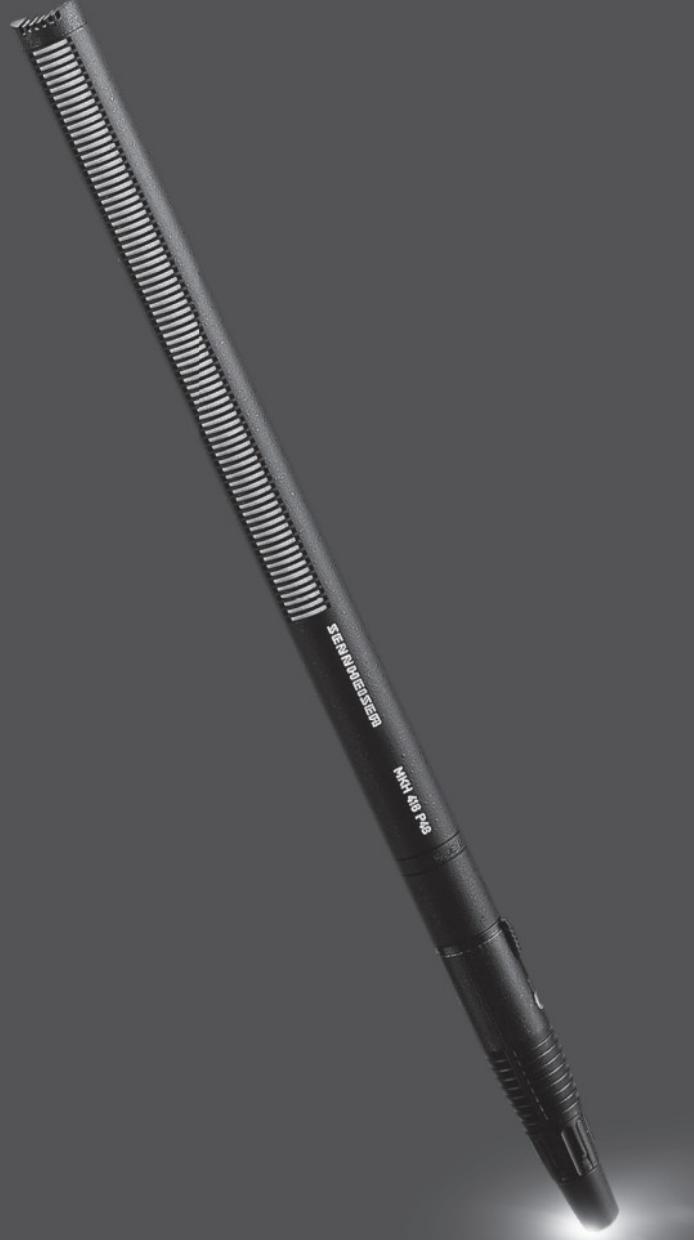


# MKH 416

## P 48 U



Instruction manual



**SENNHEISER**

# Important safety information

- Please read this instruction manual carefully and completely before using the product.
- Make this instruction manual easily accessible to all users at all times. Always include this instruction manual when passing the product on to third parties.
- This instruction manual is also available on the Internet at [www.sennheiser.com](http://www.sennheiser.com).

## Before operation

- Never open the housing of the product. If products are opened by customers in breach of this instruction, the warranty becomes null and void.

## During operation

- Keep all liquids away from the product. Liquids entering the product can short-circuit the electronics or damage the mechanics.
- Only use a soft, dry cloth to clean the product. Solvents or cleansing agents can damage the surface of the product.
- Only use the product within the specified temperature range (see "Specifications" on page 3).

## After operation

- Use the product with care and store it in a clean, dust-free environment.

## Intended use

Intended use includes:

- having read this instruction manual, especially the chapter "Important safety information",
- using the product within the operating conditions and limitations described in this instruction manual.

"Improper use" means using the product other than as described in this instruction manual, or under operating conditions which differ from those described herein.

# Package contents

- 1 MKH 416 directional studio microphone
- 1 MZW 415 foam windshield
- 1 MZQ 100 microphone clamp
- 1 Instruction manual
- 1 Carry bag

# Optional accessories

- MZQ 60-1microphone clamp
- MZS 20-1 shock mount with pistol grip
- MZW 60-1 basket windshield

For information on suppliers, contact your local Sennheiser partner: [www.sennheiser.com](http://www.sennheiser.com).

# The MKH 416 directional studio microphone

## Brief description

The MKH 416 is a directional studio microphone which is also especially suited to outdoor applications. Its high degree of directivity makes the MKH 416 a superb microphone for film and television, including outside broadcast applications. The microphone operates on the proven RF principle and is designed for 48 V phantom powering.

The MKH 416 is a combination of a pressure gradient transducer and an interference tube microphone. It has a super-cardioid pick-up pattern at low and medium frequencies, whereas at higher frequencies there is a transition to a lobar characteristic. Due to its operating principle, the MKH 416 is relatively insensitive to wind and pop noise and can therefore often be used as a soloist and broadcast microphone, without the need for an additional wind- or popshield. However, for outdoor recordings the use of an additional windshield is recommended.

The frequency response intentionally has a slightly rising characteristic at high frequencies. The microphone has a low proximity effect and therefore provides a well balanced sound even when used close to the sound source.

## Principle of the RF circuit

In contrast to the high impedance of the capsules in conventional "DC biased" condenser microphones, the capsule of an RF condenser microphone has a low impedance. The high polarization voltages normally required in condenser microphones are not necessary in the RF condenser microphone. RF condenser microphones use a comparatively low RF bias voltage of less than 10 V, generated by a built-in low-noise oscillator (8 MHz). The RF principle ensures increased operational reliability, particularly for outdoor recordings under extreme climatic conditions.

## Features

- Increased directivity due to interference tube principle
- Very low inherent self-noise
- High sensitivity
- Transformerless and fully floating balanced output
- Rugged, suitable for adverse climatic conditions
- Matt black all-metal body

## Cleaning and maintaining the MKH 416

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### CAUTION

Damage to the product due to liquids!

Liquids entering the product can short-circuit the electronics or damage the mechanics. Solvents or cleansing agents can damage the surface of the product.

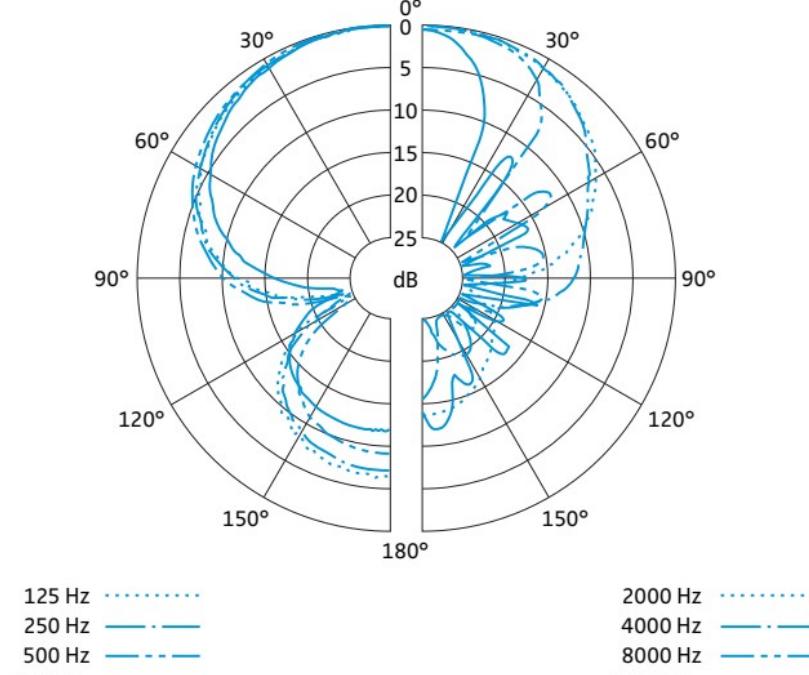
► Keep all liquids away from the product.

► Only use a soft, dry cloth to clean the product.

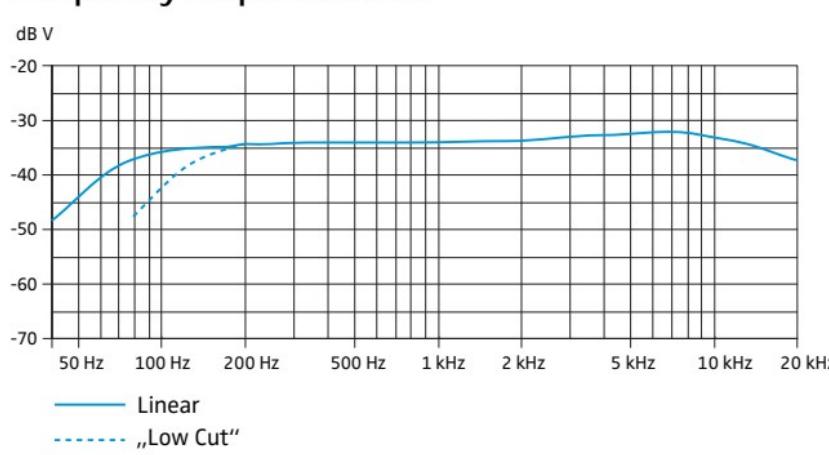
# Specifications

Frequency response	40 ... 20,000 Hz
Transducer principle	RF condenser microphone
Pick-up pattern	super-cardioid/lobar
Sensitivity (free field, no load) (1 kHz)	25 mV/Pa ± 1 dB
Nominal impedance	25 Ω
Min. terminating impedance	approx. 800 Ω
Equivalent noise level	
CCIR-weighted (CCIR468-3)	approx. 24 dB
A-weighted	approx. 13 dB
Max. sound pressure level	130 dB SPL
Power supply	48 V ± 4 V phantom powering
Current consumption	approx. 2 mA
Temperature range	-10 °C to +70 °C
Finish	matt black
Connector	3-pin XLR connector
Pin assignment	1: Ground, housing; supply (-) 2: AF (+); supply (+) 3: AF (-); supply (-) according to IEC publication 268-14/2
Dimensions	Ø 19 x 250 mm
Weight	175 g

## Polar diagram



## Frequency response curve



The original measurement protocol is included with each microphone, measured from 50 to 20,000 Hz.

# Manufacturer Declarations

## Warranty

Sennheiser electronic GmbH & Co. KG gives a warranty of 60 months on this product.

For the current warranty conditions, please visit our website at [www.sennheiser.com](http://www.sennheiser.com) or contact your Sennheiser partner.

## In compliance with the following requirements

- WEEE Directive (2012/19/EU)



Please dispose of this product by taking it to your local collection point or recycling center for such equipment.

## CE Declaration of Conformity

- RoHS Directive (2011/65/EU)
- EMC Directive (2004/108/EC)

The declaration is available at [www.sennheiser.com](http://www.sennheiser.com).

## In compliance with

Europe	EMC EN 55103-1/-2
USA	FCC 47 CFR 15 subpart B
Canada	Industry Canada ICES_003
China	
Australia/ New Zealand	

部件名称 Parts	有毒有害物质或元素						
	铅 Pb	汞 Hg	镉 Cd	六价铬 Cr <sup>6+</sup>	多溴联苯 PBB	多溴二苯醚 PBDE	环境友好的用途期间 EFUP
金属部件 Metal Parts	x	o	o	o	o	o	15
电路模块 Circuit Modules	x	o	o	o	o	o	15
电缆及电缆组件 Cables & Cable Assemblies	x	o	o	o	o	o	15
电路开关 Circuit Breakers	x	o	o	o	o	o	15

o : 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

x : 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。



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